

2005 Annual Drinking Water Quality Report

Moore County Department of Public Utilities
Seven Lakes Water System - PWSID No. 03-63-117
May 8, 2006

We're pleased to provide you with this year's Annual Water Quality Report. This report is designed to inform you about the quality water and services we deliver to you every day. Our constant goal is to provide to you a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water and to providing you this information.

What EPA Wants You to Know

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife; inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming; pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses; organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems; and radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the **Safe Drinking Water Hotline (800-426-4791)**.

Is it safe to drink?

YES! We're pleased to report that our drinking water is safe, and meets federal and state requirements. EPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some contaminants. It's important to remember that the presence of these contaminants does not necessarily pose a health risk.

When You Turn on Your Tap, Consider the Source

Our water source is ground water. Our 10 wells draw from the Middendorf Aquifer. The NC 211 Hwy. Booster Station pumps treated drinking water from the Village of Pinehurst to Seven Lakes. If you would like a copy of the Village of Pinehurst Consumer Confidence Report please contact Ben Vaughn at (910) 947-6315. The following table lists well and booster station locations.

Water Source	Location
Well 1	137 West Shenandoah Rd.
Well 6	106 Pine Ridge Ln.
Well 6A	4720 NC 211 Hwy.
Well 7A	111 Patterson Ln.
Well 8	486 Longleaf Dr.
Well 11	416 Longleaf Dr.
Well 11A	188 Gateway Dr.
Well 12	4461 NC 73 Hwy.
NC 211 Hwy. Booster Pump Station	6823 NC 211 Hwy.

Source Water Assessment Program (SWAP) Results

The North Carolina Department of Environment and Natural Resources (DENR), Public Water Supply (PWS) Section, Source Water Assessment Program (SWAP) conducted assessments for all drinking water sources across North Carolina. The purpose of the assessments was to determine the susceptibility of each drinking water source (well or surface water intake) to Potential Contaminant Sources (PCSs). The results of the assessment are available

in SWAP Assessment Reports that include maps, background information and a relative susceptibility rating of Higher, Moderate or Lower.

The relative susceptibility rating of each source for Moore County Public Utilities – Seven Lakes was determined by combining the contaminant rating (number and location of PCSs within the assessment area) and the inherent vulnerability rating (i.e., characteristics or existing conditions of the well or watershed and its delineated assessment area.). The assessment findings are summarized in the table below:

Susceptibility of Sources to Potential Contaminant Sources (PCSs)

Source Name	Susceptibility Rating
Well 1	Moderate
Well 3	Moderate
Well 4	Moderate
Well 6	Moderate
Well 6A	Moderate
Well 7A	Moderate
Well 8	Moderate
Well 11	Moderate
Well 11A	Moderate
Well 12	Moderate

The complete SWAP Assessment report for Moore County Public Utilities – Seven Lakes may be viewed on the Web at: <http://www.deh.enr.state.nc.us/pws/swap> To obtain a printed copy of this report, please mail a written request to: Source Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh NC 27699-1634, or email request to swap@ncmail.net. Please indicate your system name, PWSID, and provide your name, mailing address and phone number. If you have any questions about the SWAP report please contact the Source Water Assessment staff by phone at 919-715-2633. It is important to understand that a susceptibility rating of “higher” does not imply poor water quality, only the systems’ potential to become contaminated by PCS’s in the assessment area.

Violations that Your Water System Received for the Report Year

During 2005 or any compliance period that ended in 2005, we received an MCL violation for Combined Radium **at Wells 1, 6, 6A, 7A and 8 ONLY**. The average level of Combined Radium from **January 1 through December 31, 2005 is shown in the table below.**

WELL/ENTRYPOINT	COMBINED RADIIUM CONCENTRATION
WELL 1 / E01	7.83 pCi/l
WELLS 6,6A / EO6	10.08 pCi/l
WELL 7A / E7A	12.93 pCi/l
WELL 8 / E08	10.35 pCi/l

All other wells are currently testing below the limit. Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer. MCL’s are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect. Radium naturally occurs in some drinking water sources. The radionuclide monitoring requirements under the rule requires analysis to be collected at each entry point or well. Initial compliance monitoring is based upon four consecutive quarters calculated as an average.

We are working with the North Carolina Department of Environment and Natural Resources, our well drilling contractors, laboratories, engineers and consultants to evaluate the ground water supply and research options to correct the problem. **On February 22, 2005 we stopped using Wells 1, 6, 6A, 7A and 8 and the system is using water from Wells 11, 11A, and 12 with supplemental water pumped from the Pinehurst area of our system via the NC211 Booster Station.** Treatment for radium removal is available but is not cost-effective at this time. **If you would like more information about Combined Radium, please call the EPA Hotline at 1-800-426-4791.**

WATER SUPPLY UPDATE! Permanent abandonment of ten (10) Seven Lakes Wells will be completed in the next 12 months. Reasons for abandonment include combined radium contamination, high iron/manganese concentrations and low well

production.

Engineering, design and easement acquisition continues on the proposed bulk water purchase interconnection upgrade with our Pinehurst water system. Estimated completion of this project is March 2007 and will increase capacity to approximately 1.2 million gallons per day for our Seven Lakes water system. Completion of a 12-inch main extension along NC211 is necessary for this upgrade to take place. The main extension is scheduled for completion by September 2006.

Special Notice

Seven Lakes Wells 3 and 4 have been permanently deactivated and removed from service on September 4, 2004 due to MTBE (Methyl Tertiary Butyl Ether) contamination. MTBE was released into the aquifer from an underground gasoline storage tank leak at a nearby convenient store. We are monitoring the situation very closely as cleanup efforts continue. **If you would like more information about MTBE, please call the EPA Hotline at 1-800-426-4791.**

What if I have any questions or would like to become more involved?

If you have any questions about this report or concerning your water utility, please contact **Ben Vaughn at (910) 947 - 6315**. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings. They are held on the first Monday of each month at 2:00 p.m., and the third Monday of each month at 6:00 p.m. in the Commissioners' Meeting Room, Second floor - Historic Courthouse, Courthouse Circle, Carthage, North Carolina.

Water Quality Data Table of Detected Contaminants

We routinely monitor for over 121 substances in your drinking water according to Federal and State laws. The following tables list all the drinking water contaminants that we **detected** in the last round of sampling for the particular contaminant group. The presence of contaminants does **not** necessarily indicate that water poses a health risk. Unless otherwise noted, the data presented in these tables is from testing done **January 1st to December 31st, 2005**. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentration of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

Important Drinking Water Definitions:

Action Level - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Maximum Contaminant Level - "Maximum Allowed" (MCL) is the highest level of a substance that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal - The "Goal" (MCLG) is the level of a substance in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfection Level - The "Highest Level" (MRDL) of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfection Level Goal - The "Level" (MRDLG) of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Not-Applicable (N/A) - Information not applicable/not required for that particular water system or for that particular Rule.

Parts per billion (ppb) or Micrograms per liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years, or a single penny in \$10,000.

Parts per trillion (ppt) - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.

Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.

DETECTED SUBSTANCES TEST RESULTS							
Contaminant	Violation Y/N	Your Water	Units		MCLG	MCL	Likely Source of Contamination
Radiological Substances – regulated at the Well							
Contaminant (units)	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
			Low	High			
Alpha Emitters (pCi/l) (2005)	N	7.09	0	12.8	0	15	Erosion of natural deposits
Beta/photon emitters (pCi/l) (2003)	N	6.7	0	11.4	0	50	Decay of natural and man-made deposits
Combined Radium (pCi/l) (2005)	Y	9.78	1.3	15.9	0	5	Erosion of natural deposits
Inorganic Substances – regulated at the Well – 2005							
Contaminant (units)	MCL Violation Y/N	Your Water	Range		MCL G	MCL	Likely Source of Contamination
			Low	High			
Nitrate (ppm) SEE NOTE BELOW*	N	2.99	0	5.34	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Lead and Copper Contaminants – regulated at the user’s tap - 2003							
Contaminant (units)	Sample Date(s)	Your Water	# of sites found above the AL	MCL G	MCL	Likely Source of Contamination	
Copper (ppm) (90 th percentile)	8/21/03, 8/22/03, 8/27/03	0.22	0 of 10	1.3	AL = 1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives	
Lead (ppb) (90 th percentile) SEE NOTE BELOW**	8/21/03, 8/22/03, 8/27/03	14	1 of 10	0	AL = 15	Corrosion of household plumbing systems, erosion of natural deposits	
Pesticides and Synthetic Organic Chemical Substances – regulated at the Well – 2002 through 2004							
Contaminant (units)	MCL Violation Y/N	Your Water	Range		MCL G	MCL	Likely Source of Contamination
			Low	High			
Di(2-ethylhexyl)adipate (ppb) (Detected in Seven Lakes Well 12 only)	N	0.26	0	2.1	400	400	Discharge from chemical factories
Volatile Organic Chemical Contaminants - regulated at the Well – 2003 & 2004							
1,2-Dichloropropane (ppb) (Detected at Seven Lakes Well 7A only)	N	0.45	0	2.24	0	5	Discharge from industrial chemical factories

***NOTE:** Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

If you would like more information about Nitrate, please call the EPA Hotline at 1-800-426-4791.

****NOTE:** Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. **Additional information on lead is available from the Safe Drinking Water Hotline (1-800-426-4791).**

Disinfection By-product Substances – regulated at the user’s tap – 2005					
Contaminant (units)	MCL Violation Y/N	Your Water	MCLG	MCL	Likely Source of Contamination
Chlorine (ppm)	N	0.92	MRDLG = 4	MRDL = 4	Water additive used to control microbes
TTHM (ppb) [Total Trihalomethanes]	N	3	0	80	By-product of drinking water chlorination

Unregulated contaminant monitoring assists EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. **If you would like more information on unregulated chemicals, please call the EPA Hotline at 1-800-426-4791.**

Unregulated Volatile Organic Chemicals - tested at the Well – 2003 & 2004				
Contaminant (units)	Your Water	Range		Proposed MCL
		Low	High	
Chlorodibromomethane (ppb)	0.08	0	0.8	N/A
Chloroform (ppb)	0.17	0	1.12	N/A

Secondary contaminants, required by the NC Public Water Supply Section, are substances that affect the taste, odor and/or color of drinking water. These aesthetic contaminants normally do not have any health effects and normally do not affect the safety of your water.

Water Characteristics – regulated at the Well – 2002 & 2003

Contaminant (units)	Your Water	Range		Secondary MCL
		Low	High	
Iron (ppm)	0.009	0	0.066	0.3
Manganese (ppm)	0.008	0	0.03	0.05
pH	7.50	4.34	9.52	6.5 to 8.5
Sodium (ppm)	11.8	3.41	27.9	N/A

List of All Required Contaminants

Testing requirements and frequencies are based on type of water used, size of population, purchase system versus non-purchase systems, detection of a contaminant, state-wide sampling waivers, previous sampling history--reduced monitoring permission, etc.

Regulated Contaminants--have an allowable limit (Maximum Contaminant Level {MCL})

Microbiological--every month

Total Coliform Fecal/E. Coli--as needed Turbidity--certain systems--every 4 hours

Radiological--every 4 years

Gross Alpha Gross Beta--certain systems Combined Radium--as needed Uranium - as needed

Inorganics--certain systems--every year or every 3 years or every 9 years

Antimony Barium Cadmium Cyanide Mercury Thallium
 Arsenic Beryllium Chromium Fluoride Selenium
 Nitrate--certain systems--every year Nitrite--certain systems--one time Asbestos--certain systems--every 9 years
 Lead and Copper--every 6 months or every year or every 3 years

Total Trihalomethanes--certain systems--every quarter or every year

Chloroform Bromoform Chlorodibromomethane Bromodichloromethane
 (These 4 contaminants results added together equal the Total Trihalomethanes)

Synthetic Organic Chemicals (SOCs) including pesticides and herbicides--certain systems--every quarter or every year or every 3 years

2,4-D 2,4,5-TP (Silvex) Alachlor Atrazine Benzo (a) pyrene(PAH)
 Carbofuran Chlordane Dalapon Di(2-ethylhexyl)adipate Di(2-ethylhexyl)phthalate
 Dineseb Endrin Heptachlor Heptachlor epoxide Hexachlorobenzene
 Lindane Methoxychlor Oxamyl (Vydate) Pentachlorophenol Hexachlorocyclo-pentadiene
 Simazine Picloram Toxaphene Polychlorinated biphenyls(PCBs)
 Dibromochloropropane(DBCP)--certain systems Ethylene dibromide (EDB)--certain systems
 Acrylamide--certain systems Epichlorohydrin--certain systems

Diquat--State-wide waiver
Glyphosate--State-wide waiver

Endothall--State-wide waiver
Dioxin (2,3,7,8-TCDD)--certain systems

Volatile Organic Chemicals(VOCs)--certain systems--every quarter or every year or every 3 years

Benzene	Carbon tetrachloride	Chlorobenzene	o-Dichlorobenzene	p-Dichlorobenzene
1,2-Dichloroethane	1,1-Dichloroethylene	cis-1,2-Dichloroethylene	trans-1,2-Dichloroethylene	Dichloromethane
1,2-Dichloropropane	Ethylbenzene	Stryene	Tetrachloroethylene	Toluene
Vinyl Chloride	1,1,2-Trichloroethane	Trichloroethylene	Total Xylenes	
1,2,4-Trichlorobenzene		1,1,1-Trichloroethane		

Unregulated Contaminants--no allowable limit (MCL)

Unregulated Inorganics--certain systems--every year or every 3 years or every 9 years

Sulfate

Unregulated SOCs--certain systems--every quarter or every year or every 3 years

Aldicarb	Aldicarb sulfone	Aldicarb sulfoxide	Aldrin	Butachlor
Carbaryl	Dicamba	Dieldrin	3-Hydroxycarbofuran	Methomyl
Metolachlor	Metribuzin	Propachlor		

Unregulated VOCs--certain systems--every quarter or every year or every 3 years

Chloroform	Bromoform	Bromodichloromethane	1,3,5-Trimethylbenzene
Chlorodibromomethane	Bromobenzene	Bromochloromethane	1,2,3-Trichlorobenzene
Bromomethane	n-Butylbenzene	sec-Butylbenzene	1,2,3-Trichloropropane
Tert-Butylbenzene	Chloroethane	Chloromethane	1,2,4-Trimethylbenzene
o-Chlorotoluene	p-Chlorotoluene	Dibromomethane	n-Propylbenzene
M-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane	1,1,2,2-Tertachloroethane
1,3-Dichloropropane	2,2-Dichloropropane	1,1-Dichloropropene	1,1,1,2-Tertachloroethane
1,3-Dichloropropene	Fluorotrichloromethane	Hexachlorobutadiene	Isopropylbenzene
p-Isopropyltoluene	Naphthalene		

Total Haloacetic Acids--certain systems—every quarter or every year

Monochloroacetic Acid	Dichloroacetic Acid	Trichloroacetic Acid	Monobromoacetic Acid	Dibromoacetic Acid
-----------------------	---------------------	----------------------	----------------------	--------------------

(These 5 contaminants results added together equal the Total Haloacetic Acids)

Secondary Contaminants/Water Characteristics--certain systems--every year or every 3 years or every 9 years

Iron--has MCL	Manganese--has MCL	Nickel--no MCL	Sodium--no MCL	pH--has a range
---------------	--------------------	----------------	----------------	-----------------

We, at Moore County Department of Public Utilities, work around the clock to provide top quality water to every tap. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life, and our children's future. Please call our office at (910) 947-6315 if you have questions.